

Claims

1. A capacitive acceleration sensor comprising at least one pair of electrodes such, that each pair of electrodes comprises a movable electrode, which is responsive to the acceleration, and at least one stationary plate portion, wherein each pair of electrodes further comprises an axis of rotation essentially forming a common axis such, that

- the movable electrode of the acceleration sensor is rigidly supported at the axis of rotation such, that the movable electrode is free to turn in a rotational motion about the axis of rotation, and that

- several pairs of electrodes are used in the acceleration sensor.

2. The capacitive acceleration sensor of Claim 1, wherein the position of the pairs of electrodes is selected symmetrically in relation to axes of symmetry.

3. The capacitive acceleration sensor of Claim 1, wherein the shape of the pairs of electrodes is selected to be suitable in relation to the number of pairs of electrodes.

4. The capacitive acceleration sensor of Claim 1, wherein at least two pairs of electrodes are used in the acceleration sensor.

5. The capacitive acceleration sensor of Claim 1, wherein two pairs of electrodes are used in the acceleration sensor.

6. The capacitive acceleration sensor of Claim 5, wherein a one axis acceleration sensor is implemented by using two pairs of electrodes.
7. The capacitive acceleration sensor of Claim 5, wherein a two axes acceleration sensor is implemented by using two pairs of electrodes.
8. The capacitive acceleration sensor of Claim 5, wherein the pairs of electrodes are positioned such, that two axes of symmetry are formed.
9. The capacitive acceleration sensor of Claim 5, wherein length of the line segment between the centers of gravity of each of the movable electrodes is shorter than the straight line drawn between any support points of different movable electrodes.
10. The capacitive acceleration sensor of Claim 1, wherein three pairs of electrodes are used in the acceleration sensor.
11. The capacitive acceleration sensor of Claim 10, wherein a one axis acceleration sensor is implemented by using three pairs of electrodes.
12. The capacitive acceleration sensor of Claim 10, wherein a two axes acceleration sensor is implemented by using three pairs of electrodes.
13. The capacitive acceleration sensor of Claim 10, wherein a three axes acceleration sensor is implemented by using three pairs of electrodes.

14. The capacitive acceleration sensor of Claim 10, wherein the pairs of electrodes are positioned such, that three axes of symmetry are formed.

15. The capacitive acceleration sensor of Claim 10, wherein the pairs of electrodes are positioned in the sensor such, that the positive direction vector of each movable electrode is at an angle of 120° , and 240° in relation to the positive direction vector of the other two movable electrodes.

16. The capacitive acceleration sensor of Claim 8, wherein the negative direction vectors of the movable electrodes intersect at essentially one point.

17. The capacitive acceleration sensor of Claim 1, wherein four pairs of electrodes are used in the acceleration sensor.

18. The capacitive acceleration sensor of Claim 17, wherein a one axis acceleration sensor is implemented by using four pairs of electrodes.

19. The capacitive acceleration sensor of Claim 17, wherein a two axes acceleration sensor is implemented by using four pairs of electrodes.

20. The capacitive acceleration sensor of Claim 17, wherein a three axes acceleration sensor is implemented by using four pairs of electrodes.

21. The capacitive acceleration sensor of Claim 17, wherein the pairs of electrodes are positioned such, that four axes of symmetry are formed.

22. The capacitive acceleration sensor of Claim 17, wherein the pairs of electrodes are positioned in the sensor such, that the positive direction vector of each movable electrode is at an angle of 90° , 180° , and 270° in relation to the positive direction vector of the other three movable electrodes.

23. The capacitive acceleration sensor of Claim 17, wherein the negative direction vectors of the movable electrodes intersect at essentially one point.

24. The capacitive acceleration sensor of Claim 1, wherein eight pairs of electrodes are used in the acceleration sensor.

25. The capacitive acceleration sensor of Claim 24, wherein a one axis acceleration sensor is implemented by using eight pairs of electrodes.

26. The capacitive acceleration sensor of Claim 24, wherein a two axes acceleration sensor is implemented by using eight pairs of electrodes.

27. The capacitive acceleration sensor of Claim 24, wherein a three axes acceleration sensor is implemented by using eight pairs of electrodes.

28. The capacitive acceleration sensor of Claim 24, wherein the pairs of electrodes are positioned such, that four axes of symmetry are formed.

29. The capacitive acceleration sensor of Claim 1, wherein the different pairs of electrodes are adapted to measuring at different ranges of acceleration.

30. The capacitive acceleration sensor of Claim 1, wherein some of the pairs of electrodes of the acceleration sensor are redundant pairs of electrodes.

31. The capacitive acceleration sensor of Claim 1, wherein some of the pairs of electrodes of the acceleration sensor are used for linearisation of the change in capacitance.